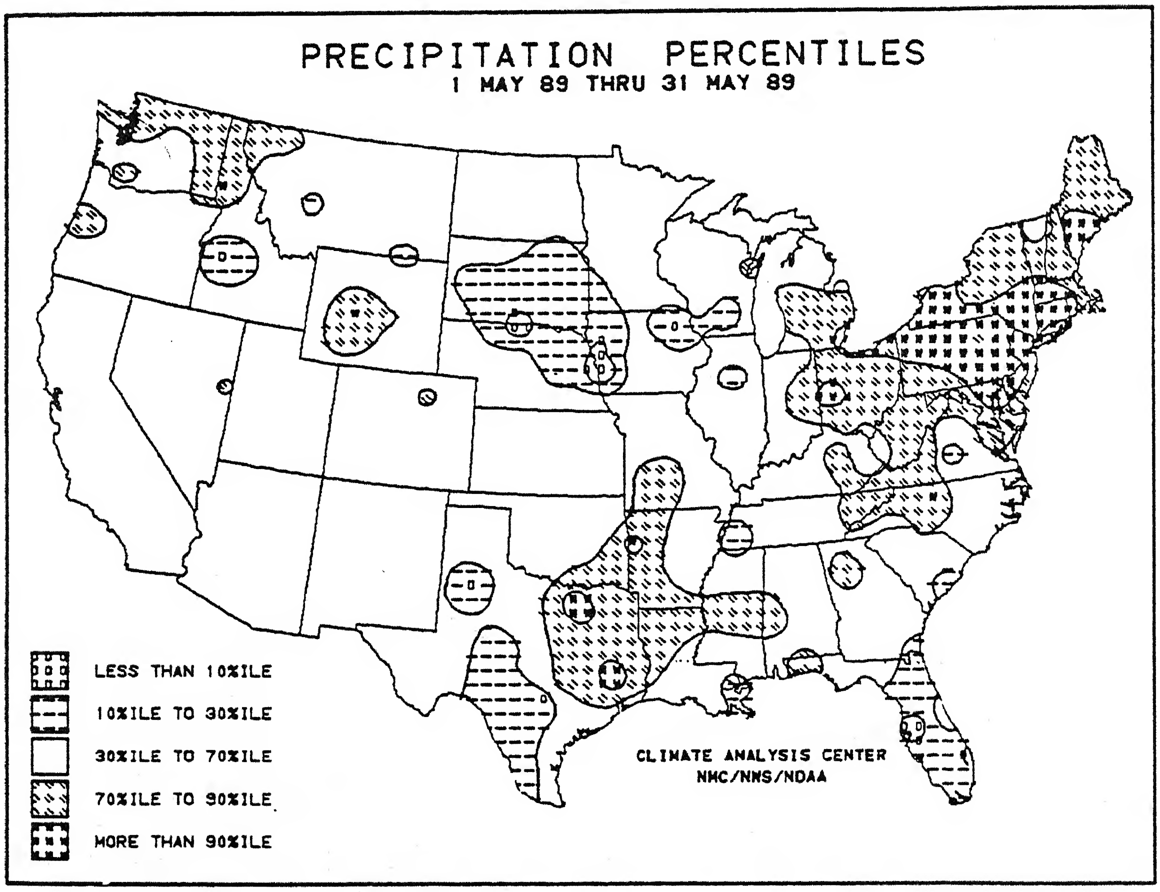
WEEKLY CLIMATE BULLETIN

No. 89/22 Washington, DC June 3, 1989



MAY 1989 WAS EXCESSIVELY WET ACROSS THE SOUTH-CENTRAL GREAT PLAINS, THE LOWER MISSISSIPPI VALLEY, AND THE NORTHEAST (ME, NH, VT, MA, NY, CT, PA, RI, MD, DE, NJ) AS THE LATTER REGION RECORDED THE SECOND WETTEST MAY DURING THE PAST 95 YEARS, ACCORDING TO THE NATIONAL CLIMATIC DATA CENTER. FOR MORE DETAILS, REFER TO THE U.S. MONTHLY CLIMATE SUMMARY COMMENCING ON PAGE 11.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global three month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF JUNE 3, 1989

1. Coastal sections of British Columbia and Alaska:

MORE RAIN.

Up to 217 mm of precipitation occurred in the area and ended the dry spell. [Ended at 14 weeks].

2. North-Central United States and South-Central Canada:

SUBNORMAL PRECIPITATION PERSISTS.

As much as 130 mm of rain fell at a few stations in Wisconsin; however, the thunderstorms were scattered and dryness continued across most of the region. (See U.S. Weekly Climate Highlights) [11 weeks].

3. Eastern United States:

WETNESS DIMINISHES.

Little or no precipitation occurred at many stations in the East; however, isolated showers dropped up to 84 mm of rain in central New York. (See U.S. Weekly Climate Highlights) [5 weeks].

4. Eastern Mexico and Southern Texas:

HEAT CONTINUES.

Unusually high temperatures, averaging 4°C above normal in south central Texas, were recorded as a late spring heat wave continued. (See U.S. Weekly Climate Highlights) [3 weeks].

5. Turkey:

AREA STILL DRY.

Little or no precipitation occurred as the prolonged dry spell continued. [12 weeks].

6. Manchuria and Southeastern Soviet Union:

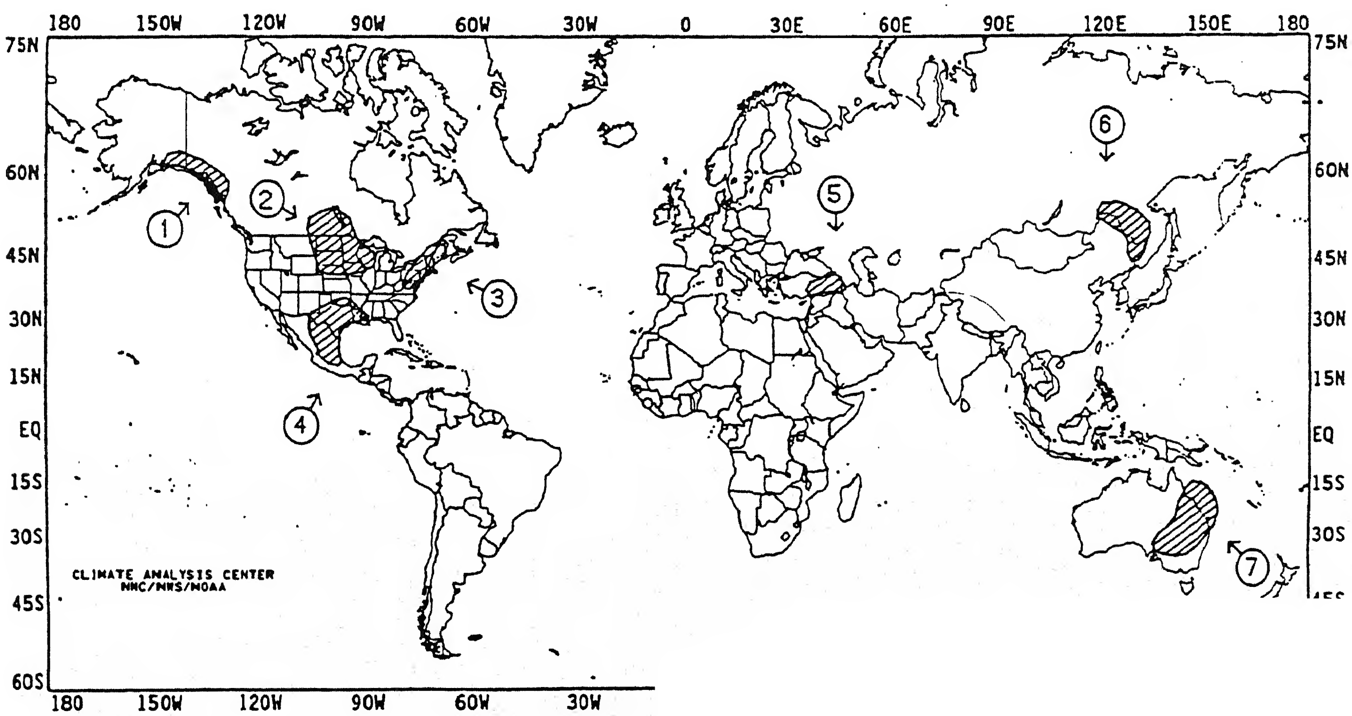
SPOTTY SPRING RAINS.

Precipitation that normally begins in the spring and reaches a maximum during the summer months has so far been scattered and generally subnormal; however, heavier rains in Manchuria, up to 52 mm, eased the dryness there. [5 weeks].

7. Eastern Australia:

"BIG WET" EASES.

Generally drier conditions, with precipitation amounts less than 32 mm, brought relief from the unusually wet weather of previous weeks. [12 weeks].



EXF

TEXT: Approximate duration of anomalies is in bracke
week's values.

MAP: Approximate locations of major anomalies and e
current two week temperature anomalies, four week p

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF MAY 28 THROUGH JUNE 3, 1989.

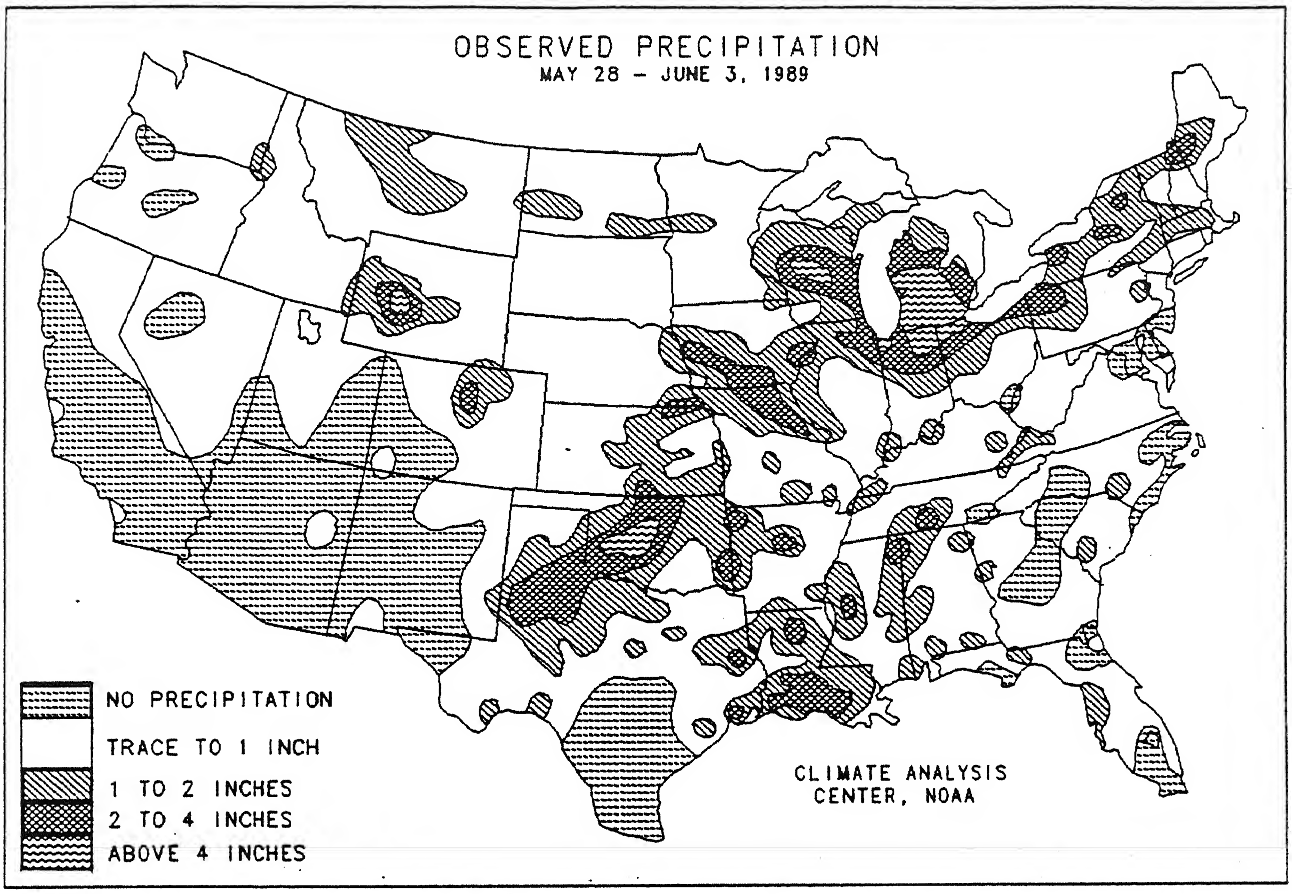
A stationary front, stretching from northern Texas northeastward to southern Michigan, triggered numerous outbreaks of severe weather in portions of the southern and central Great Plains, the lower Missouri and the upper Mississippi Valleys, and the Great Lakes. In the West, a trough of low pressure and an upper-air disturbance brought cooler air and scattered showers and thunderstorms to parts of the Pacific Northwest and the northern half of the Rockies and heavy snow (e.g. 10 inches near Cut Bank, MT and a foot at Great Falls, MT) in the higher elevations of the Cascades and northern Rockies. Early in the week, a cold front stalled across the central Great Plains and western Great Lakes and produced strong thunderstorms over much of the nation's midsection. By mid-week, the cold front remained anchored over the same area as a series of low pressure centers developed and moved along the front. Intense thunderstorms, with torrential downpours, damaging winds, large hail, and several tornadoes, were common in southern Iowa, most of Wisconsin and Michigan, and the northern thirds of Illinois, Indiana, and Ohio. With three consecutive days of strong thunderstorms, some locations in southern Michigan reported severe flooding, while copious rainfall in a short period of time (e.g. 4 inches in 2 hours at St. John, IN) caused flash flooding in sections of northwestern Indiana. As the week ended, the front slowly progressed southeastward. This finally allowed drier and cooler air to enter the central Great Plains and Great Lakes, however, severe weather erupted ahead of the cold front in the southern Great Plains and New England. Elsewhere, widely-scattered showers and thunderstorms occurred throughout the Southeast, while a cold front brought wet and windy weather to the Pacific Northwest.

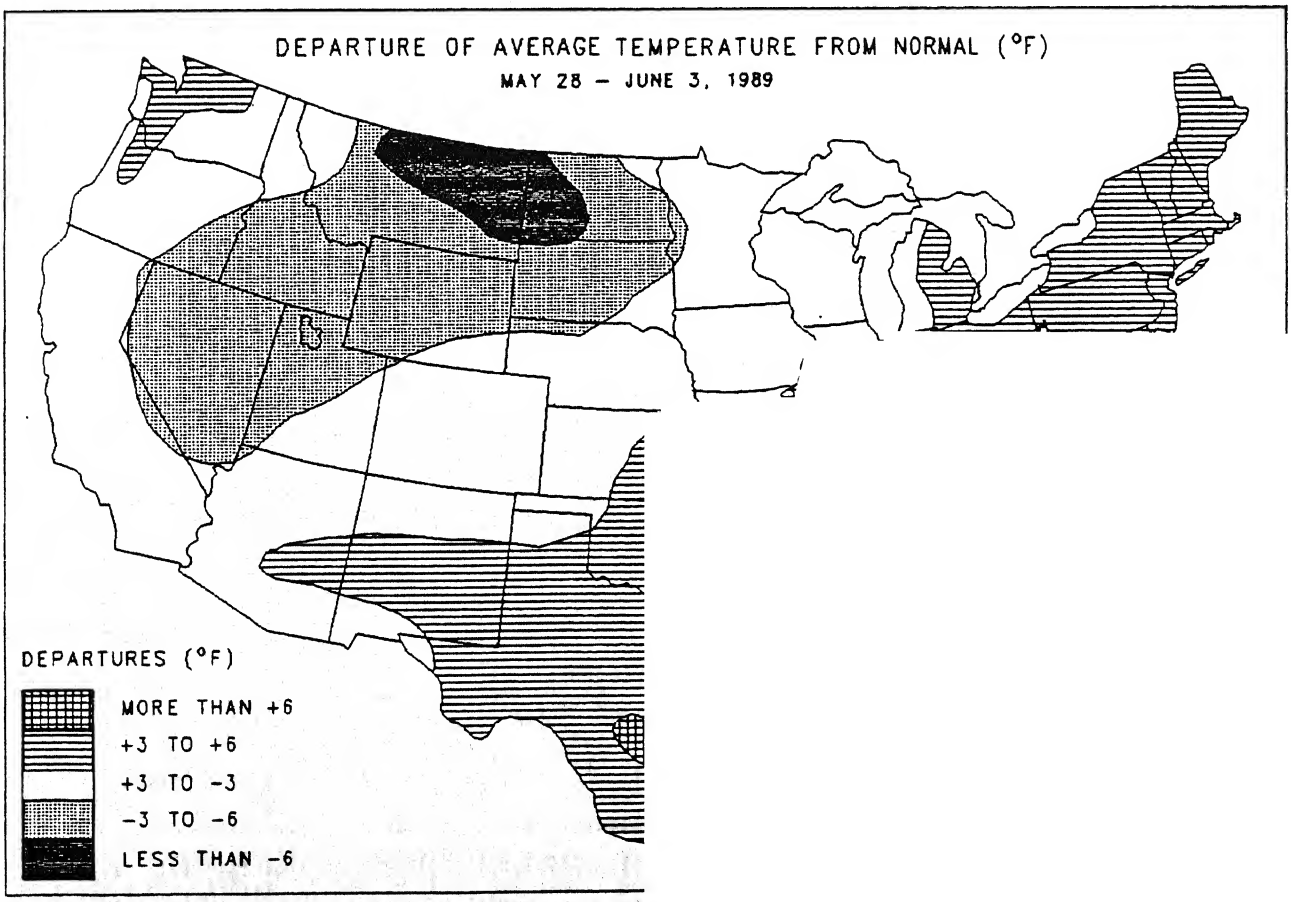
According to the River Forecast Centers, much of the south-central Great Plains, the lower Missouri and lower Mississippi Valleys, and the Great Lakes reported heavy precipitation last week. The greatest weekly amounts (more than 5 inches) were observed in central Oklahoma, northeastern Texas, central Wisconsin, northwestern Indiana, and southern Michigan (see Table 1 and Figure 1). During the past 3 weeks, many locations in northern Texas, the eastern halves of Oklahoma and Kansas, and the western thirds of Missouri and Arkansas have measured well over 6 inches of rain (see Figure 2). Elsewhere, heavy amounts fell on parts of western Wyoming, northern Colorado, the Tennessee Valley, and along sections of the central Gulf and southeastern Alaskan Coasts, the latter area receiving significant relief from long-term dryness. Light to moderate totals occurred across the northern halves of the Pacific Coast, Intermountain West, and Rockies, in most of the Great Plains, and throughout much of the eastern half of the country. Little or no precipitation was recorded in the southern halves of the Pacific Coast, the Intermountain West, and Texas, in northern Florida, and along portions of the southern and middle Atlantic Coasts.

For the third successive week, unseasonably hot conditions continued across the southern Great Plains as temperatures averaged between 4°F and 7°F above normal in eastern New Mexico and southern Texas. Farther east, a ridge of high pressure pumped warm, humid Gulf air northward throughout most of the eastern half of the nation. The greatest positive departures (up to +6°F) were reported in the mid-Atlantic (see Table 2), but readings in the nineties extended as far north as Massachusetts. Hot weather also prevailed in the Southeast and Great Plains. In the West, conditions rapidly moderated from last week's subnormal temperatures as highs soared into the nineties and one hundreds in interior California during the latter half of the week (see Figure 3). Dozens of stations tied or set new daily maximum temperature records during the week in various parts of the country. In Alaska, abnormally mild conditions covered much of the state as departures approached +8°F at Barrow. In contrast, cool air persisted in most of the West and to the north of the stationary front. Temperatures averaged between 5°F and 7°F below normal in the Great Basin and the northern Plains (see Table 3). Lows dipped below 32°F in the northern halves of the Intermountain West and Rockies, while readings in the middle to upper thirties occurred across the northern third of the Great Plains (see Figure 4).

TABLE 1. Selected stations with 2.50 or more inches of precipitation for the week.

STATION	TOTAL (INCHES)	STATION	TOTAL (INCHES)
CORDOVA/MILE 13, AK	8.53	PERU/GRISSOM AFB, IN	3.58
YAKUTAT, AK	7.07	GRAND RAPIDS, MI	3.39
FORT WAYNE, IN	6.01	VALDEZ, AK	3.38
LANSING, MI	5.47	KODIAK, AK	3.33
OKLAHOMA CITY, OK	4.62	FT. SILL/HENRY POST AAF, OK	3.19
TOLEDO, OH	4.44	WAUSAU, WI	3.03
DETROIT, MI	4.30	CLEVELAND, OH	2.95
LANDER, WY	4.12	YOUNGSTOWN, OH	2.88
SAGINAW, MI	4.03	LAFAYETTE, LA	2.81
LAKE CHARLES, LA	3.92	LUBBOCK/REESE AFB, TX	2.79
OKLAHOMA CITY/TINKER AFB, OK	3.77	MT. WASHINGTON, NH	2.77
GLENVIEW NAS, IL	3.68	LUBBOCK, TX	2.67
SOUTH BEND, IN	3.63	HOBART, OK	2.64
MUSKEGON, MI	3.62	OTTUMWA, IA	2.61


OBSERVED PRECIPITATION
MAY 28 – JUNE 3, 1989
NO PRECIPITATION
TRACE TO 1 INCH
1 TO 2 INCHES
2 TO 4 INCHES
ABOVE 4 INCHES
CLIMATE ANALYSIS
CENTER, NOAA


DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
MAY 28 – JUNE 3, 1989
DEPARTURES (°F)
MORE THAN +6
+3 TO +6
+3 TO -3
-3 TO -6
LESS THAN -6

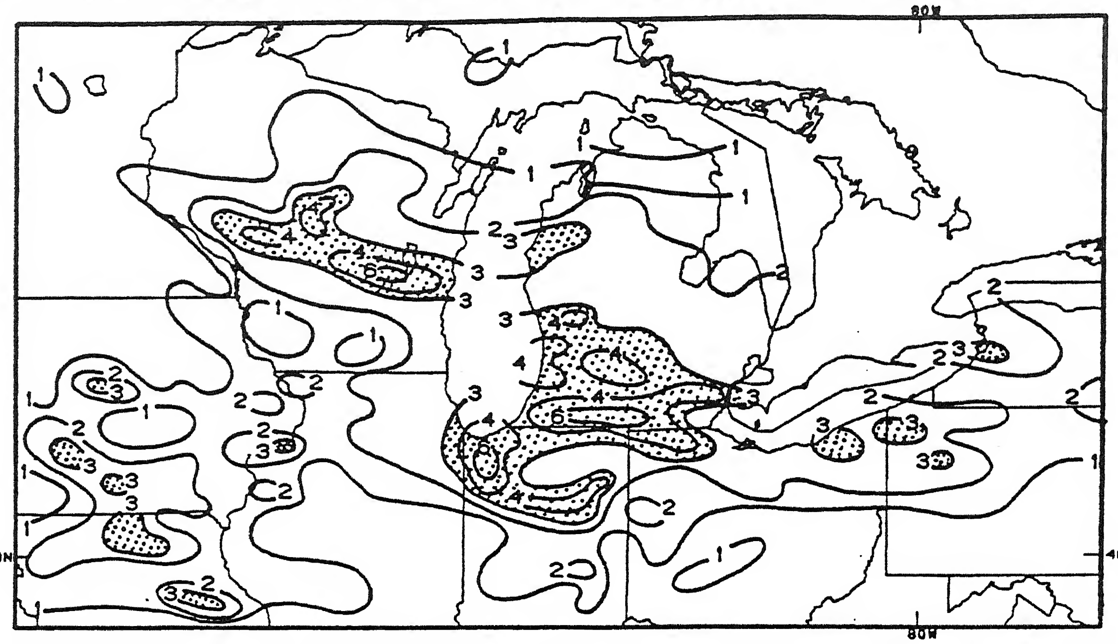


Figure 1. Total precipitation (inches) during the week of May 28-June 3, 1989 obtained from first-order synoptic, airways, and the River Forecast Centers stations. Isopleths are only drawn for 1, 2, 3, 4, and 6 inches, and stippled areas are more than 3 inches. Numerous thunderstorms drenched portions of the upper Mississippi Valley and Great Lakes as up to 7.5 inches of rain caused severe flooding in southern Michigan, northwestern Indiana, and central Wisconsin.

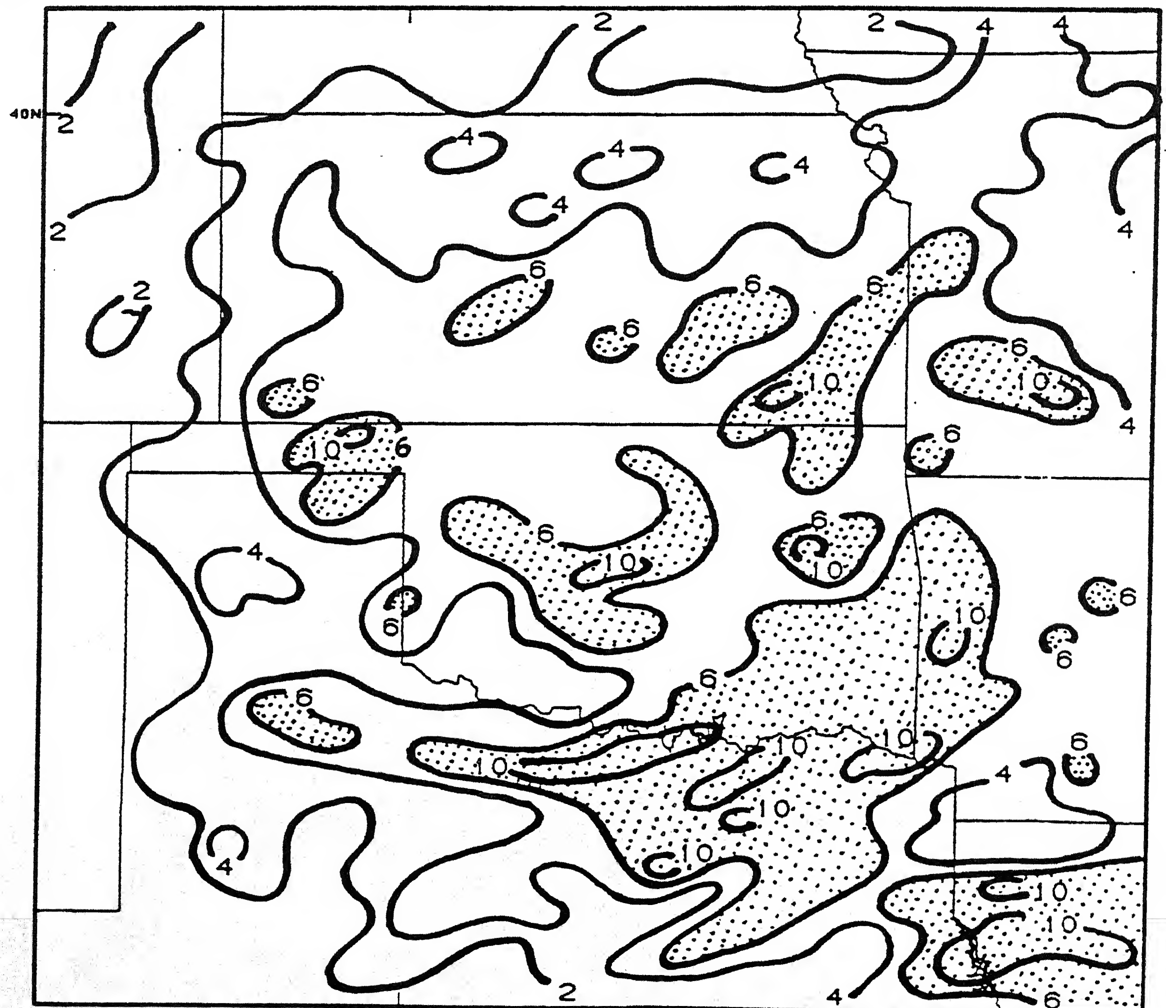


Figure 2. Total precipitation (inches) during May 14-June 3, 1989 obtained from first-order synoptic, airways, and the River Forecast Centers stations. Isopleths are only drawn for 2, 4, 6, and 10 inches, and stippled areas are more than 6 inches. During the past 3 weeks, torrential rains have fallen on most of the south-central Great Plains and lower Mississippi Valley as many locations have accumulated more than 10 inches.

TABLE 2. Selected stations with temperatures averaging 5.0°F or more ABOVE normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BARROW, AK	+8.0	35.4	NEW YORK/KENNEDY, NY	+5.6	70.1
NEWARK, NJ	+7.6	74.7	ISLIP, NY	+5.6	68.2
ANNETTE ISLAND, AK	+7.6	59.2	ATLANTA, GA	+5.5	78.3
SAN ANTONIO, TX	+7.4	86.3	CHATHAM, MA	+5.5	62.7
NEW YORK/LA GUARDIA, NY	+7.4	73.9	ST. LOUIS, MO	+5.4	75.9
FAYETTEVILLE, AR	+7.2	76.8	PHILADELPHIA, PA	+5.4	72.8
ROSWELL, NM	+6.9	80.8	WILMINGTON, DE	+5.4	72.4
BEEVILLE NAS, TX	+6.4	86.1	BLUEFIELD, WV	+5.4	69.7
BECKLEY, WV	+6.0	68.9	EVANSVILLE, IN	+5.3	75.7
CINCINNATI, OH	+5.9	73.6	SALISBURY, MD	+5.3	72.8
PITTSBURGH, PA	+5.9	70.1	QUILLAYUTE, WA	+5.3	58.5
DOVER AFB, DE	+5.8	74.4	PINE BLUFF, AR	+5.2	81.0
ZANESVILLE, OH	+5.8	70.9	CLEVELAND, OH	+5.2	68.9
MONROE, LA	+5.7	82.6	LEXINGTON, KY	+5.1	73.6
FORT SMITH, AR	+5.7	79.4	CHARLESTON, WV	+5.1	72.8
LOUISVILLE, KY	+5.7	75.6	MARTINSBURG, WV	+5.1	71.7
ATLANTIC CITY, NJ	+5.7	70.4	ALTOONA, PA	+5.1	68.3
ERIE, PA	+5.7	66.3	MCALESTER, OK	+5.0	78.5
WASHINGTON/DULLES, VA	+5.6	72.1	CHARLOTTE, NC	+5.0	76.9

TABLE 3. Selected stations with temperatures averaging 3.5°F or more BELOW normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
GREAT FALLS, MT	-7.5	50.0	CASPER, WY	-4.8	52.8
MILES CITY, MT	-7.3	54.4	BILLINGS, MT	-4.8	54.4
HAVRE, MT	-7.1	52.1	LANDER, WY	-4.7	52.5
CUT BANK, MT	-6.6	46.9	WINNEMUCCA, NV	-4.4	54.6
DICKINSON, ND	-6.4	51.8	HURON, SD	-4.4	58.2
LOVELOCK, NV	-6.1	56.3	HELENA, MT	-4.2	51.9
WILLISTON, ND	-6.0	53.7	ELY, NV	-4.1	50.3
BISMARCK, ND	-6.0	53.8	JAMESTOWN, ND	-4.1	55.6
GLASGOW, MT	-5.7	54.0	BOZEMAN, MT	-3.9	49.7
RAPID CITY, SD	-5.2	55.3	PIERRE, SD	-3.9	59.1
BUTTE, MT	-5.1	46.1	MINOT, ND	-3.7	55.1
VALENTINE, NE	-5.0	58.2	IDAHO FALLS, ID	-3.6	53.1
POCATELLO, ID	-4.9	53.1			

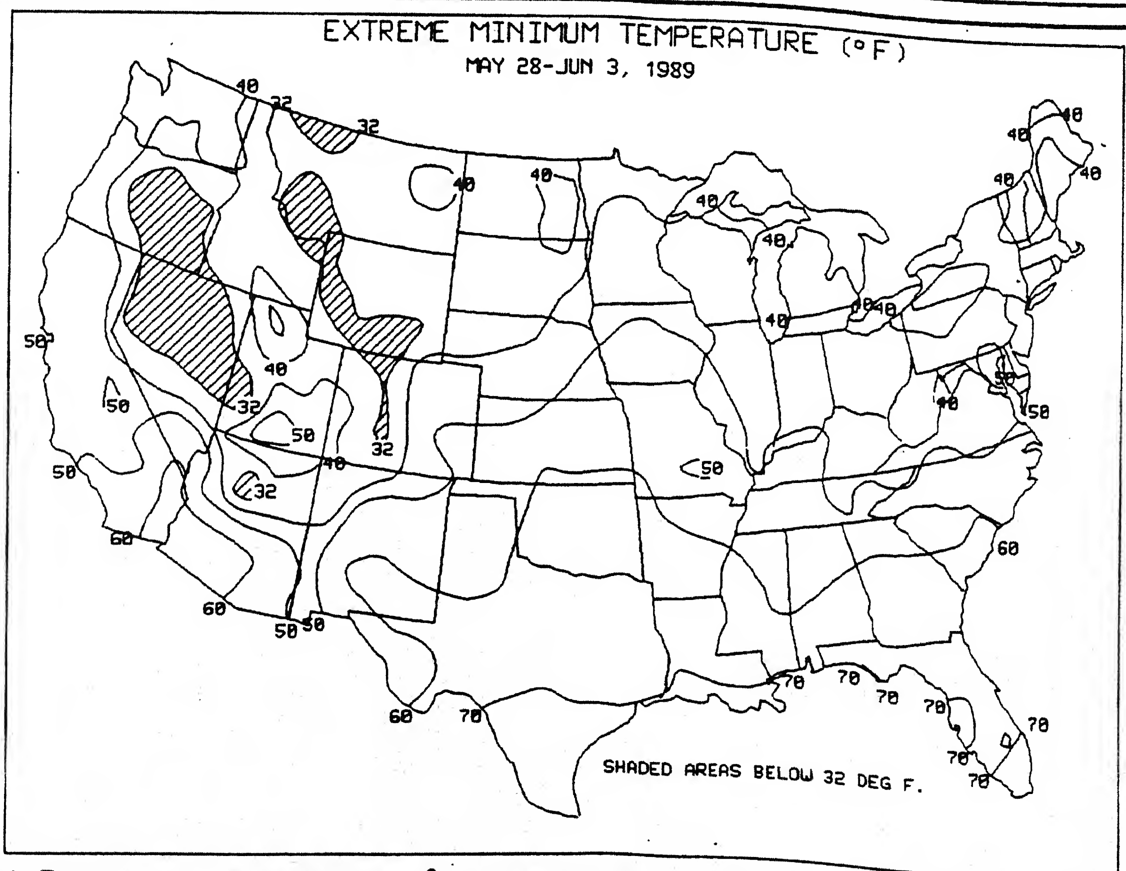


Figure 4. Extreme minimum temperatures (°F) during the week of May 28-June 3, 1989. Unseasonably cold air settled over the Great Basin and the northern half of the Rockies as lows plunged below freezing.

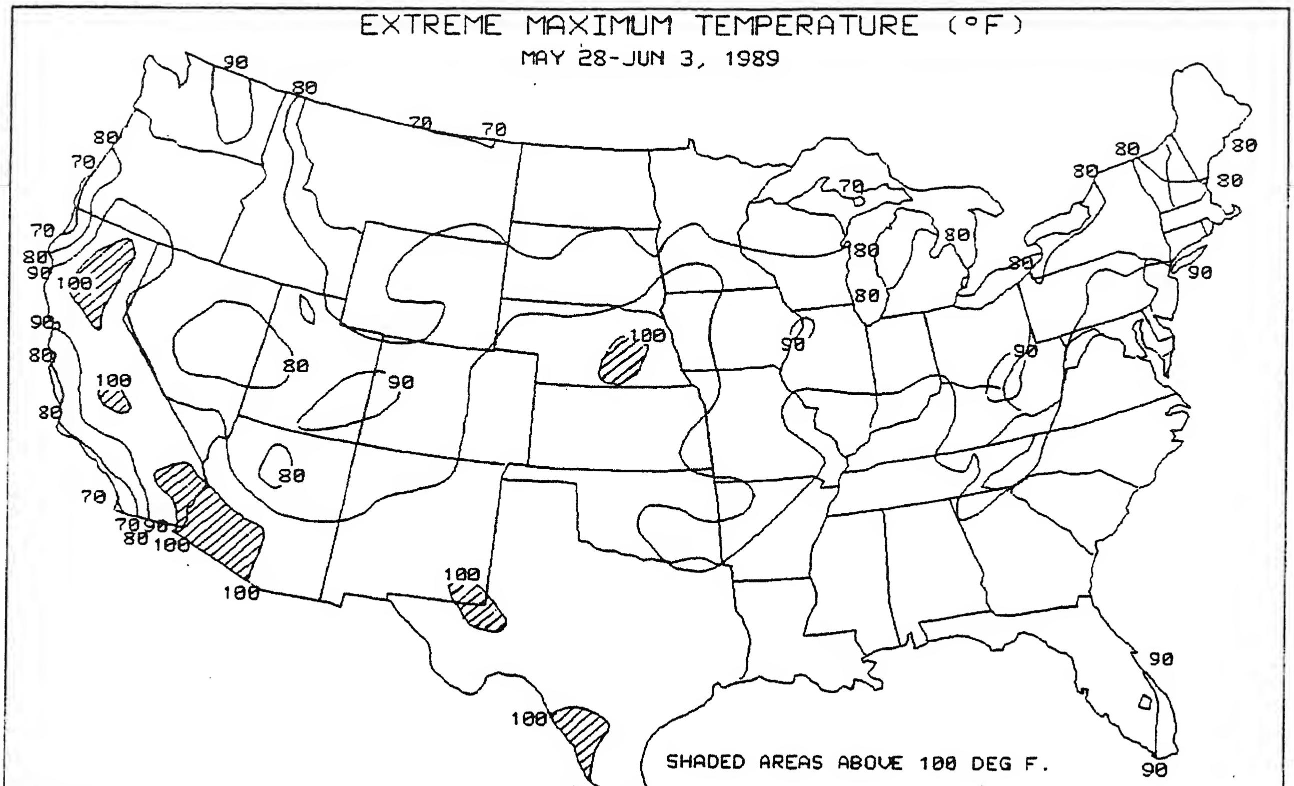
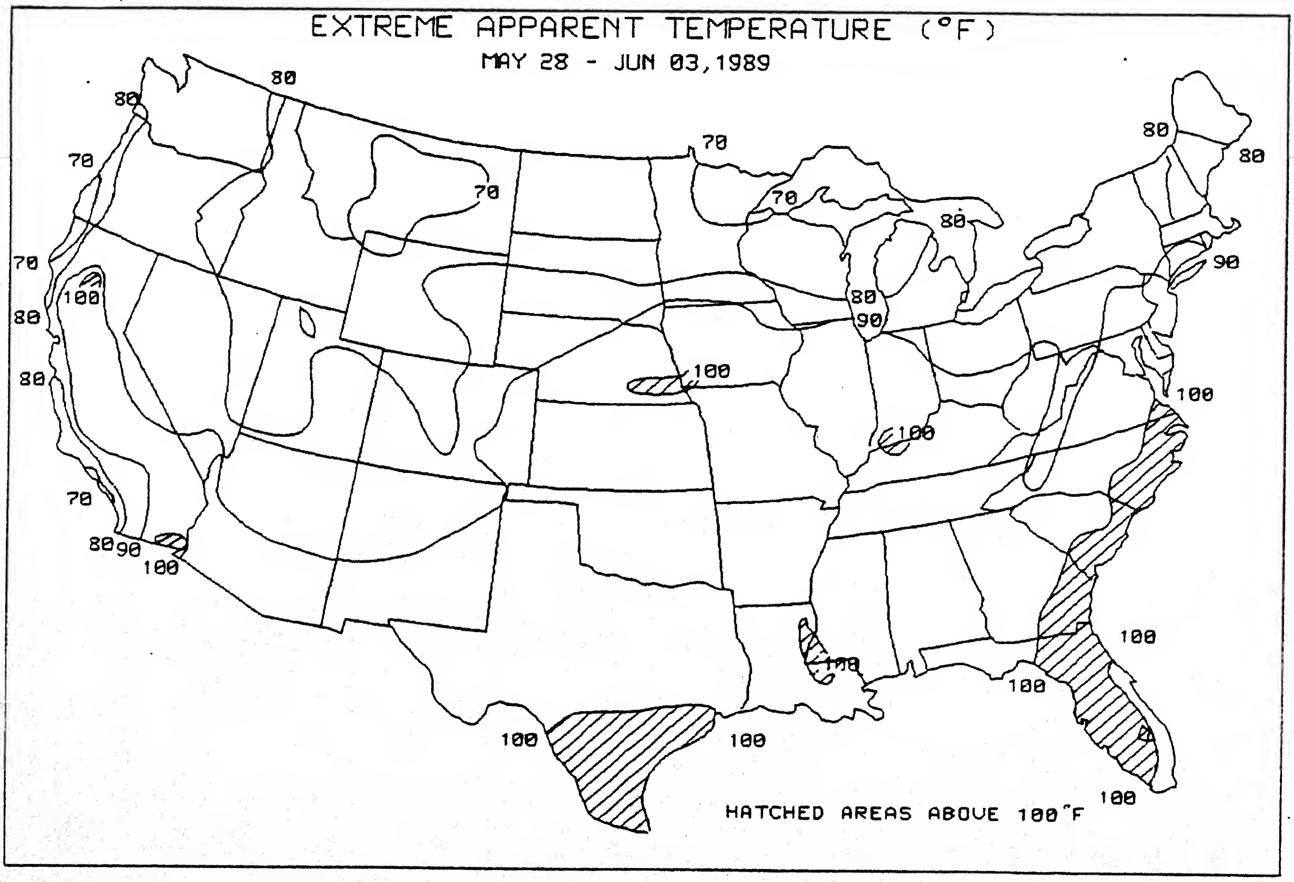
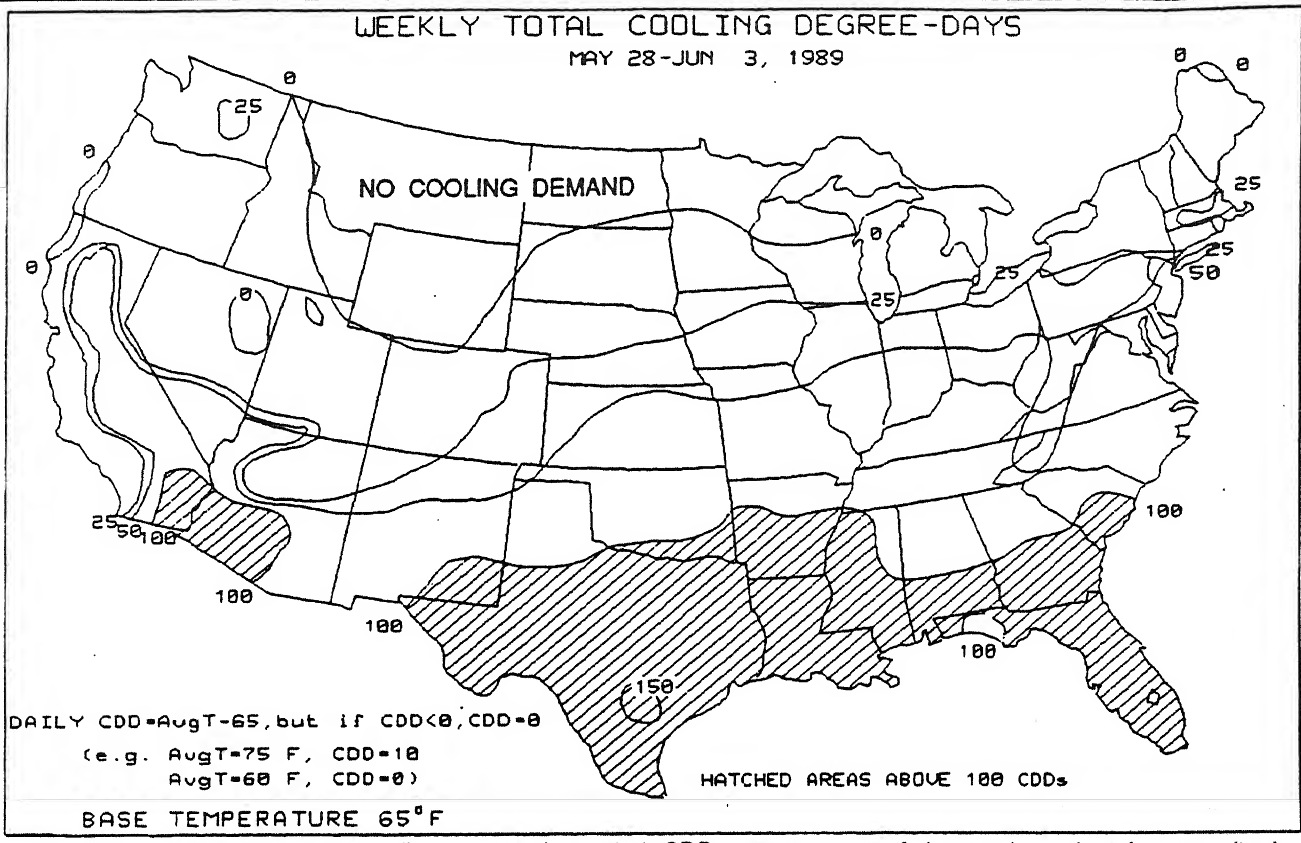


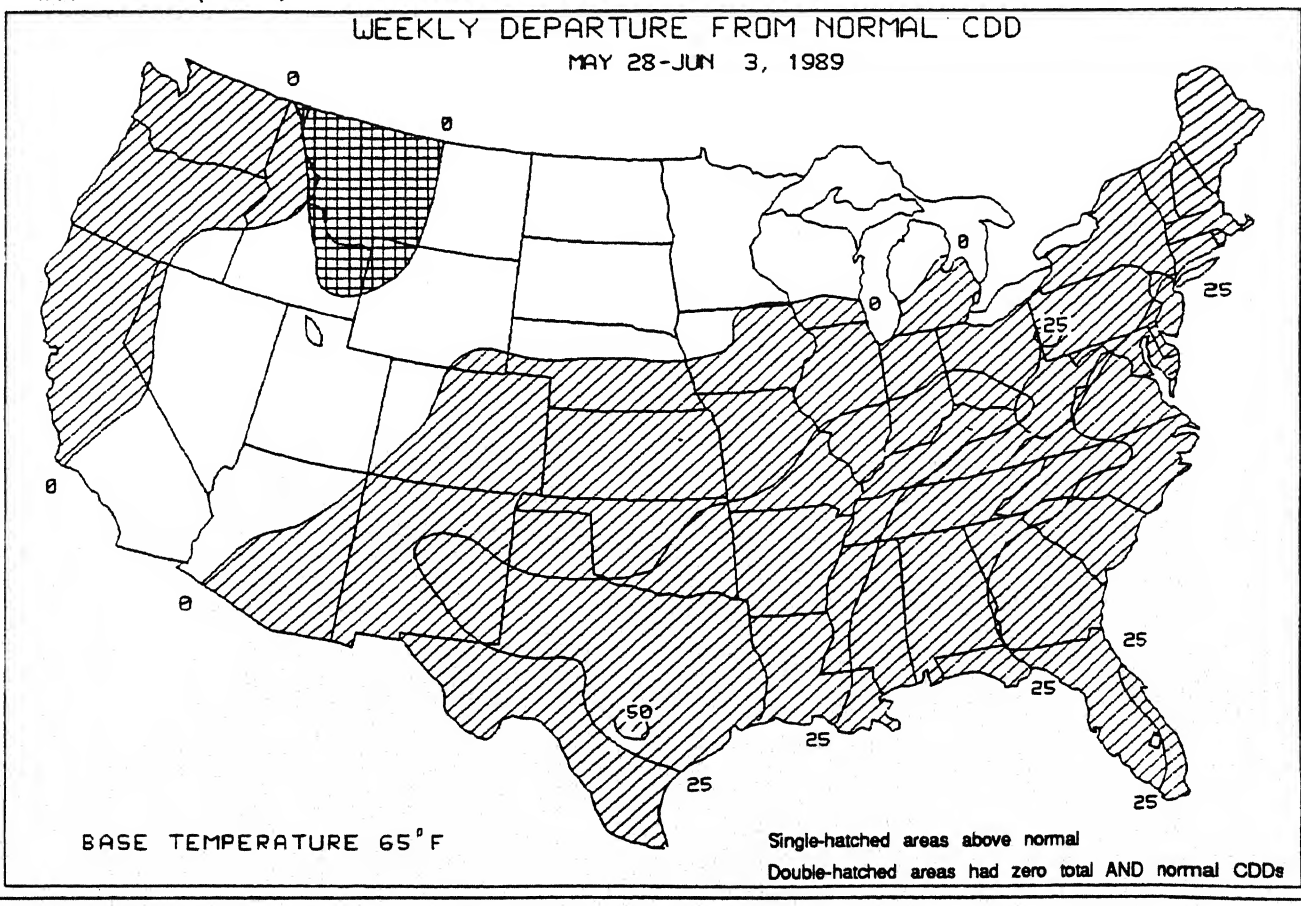
Figure 3

Hot, dry air in the Great Plains, desert Southwest and the valleys of California sent highs into the one hundreds while nineties occurred across most of the southern half of the nation (top). High temperatures and humid air combined to create dangerous apparent temperatures along the southern Atlantic Coast and in southern Texas (bottom).

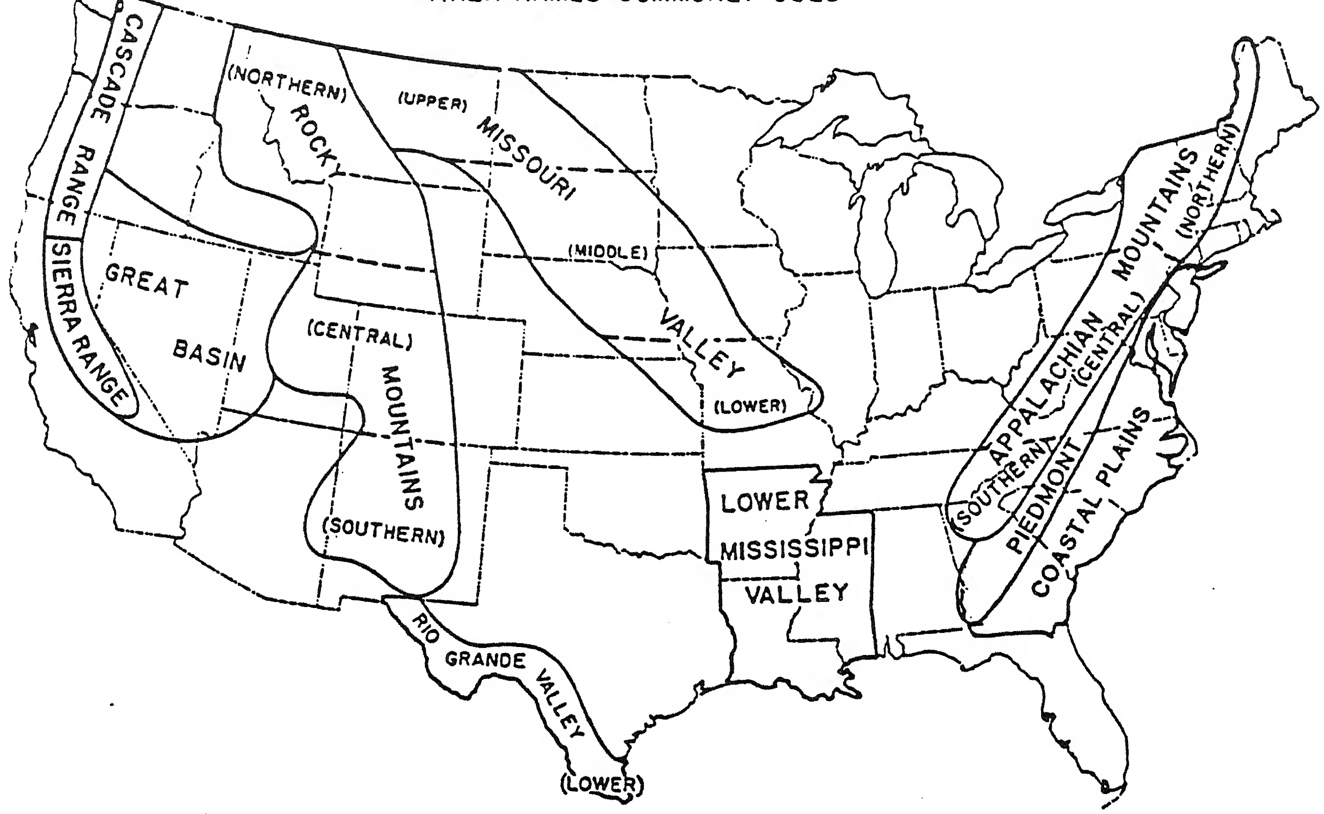




Warm weather sent weekly cooling usage above 100 CDDs across most of the southern tier of states (top) as above normal temperatures required above normal cooling demand in much of the southern, eastern, and western U.S. (bottom).



AREA NAMES COMMONLY USED



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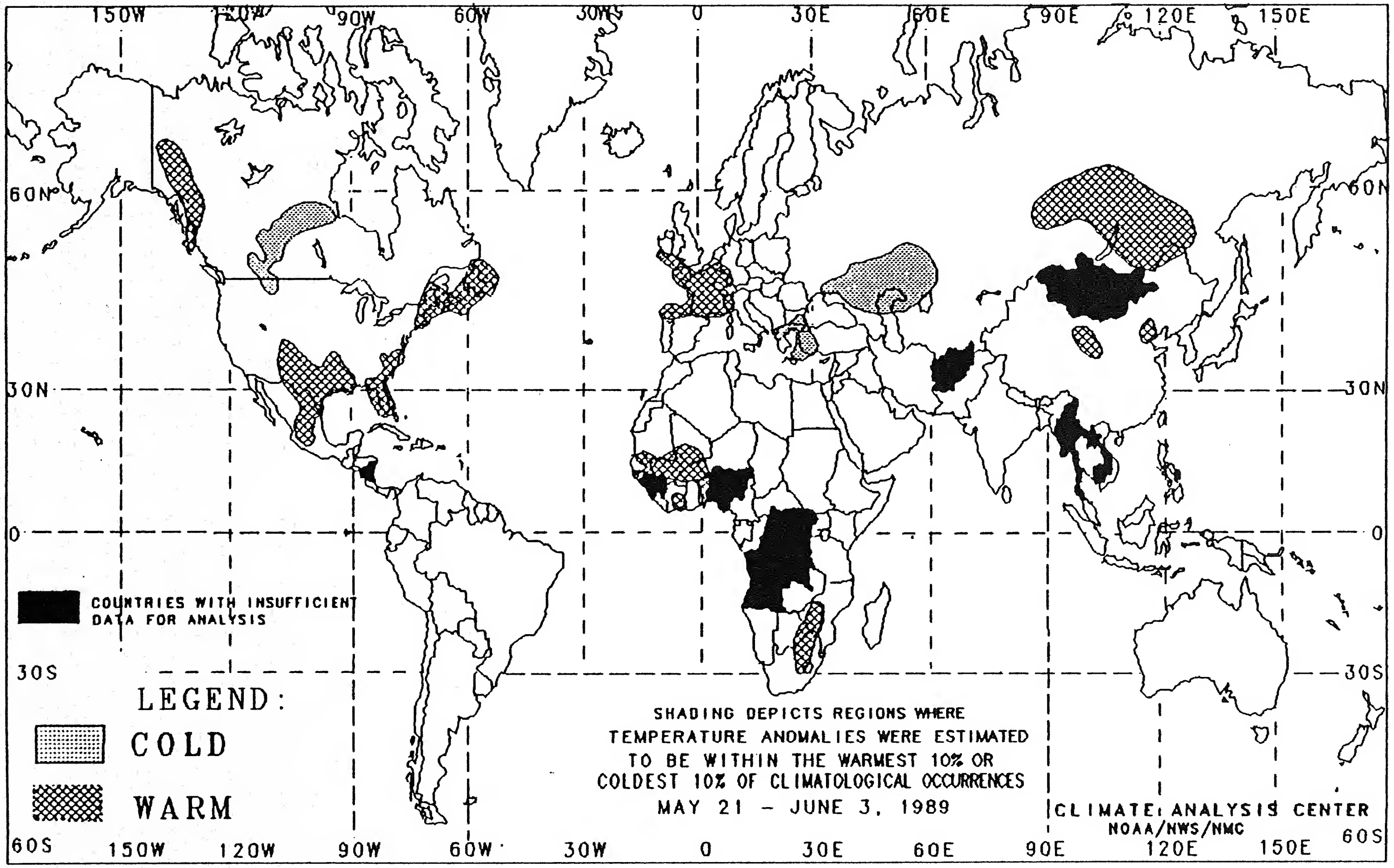
GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

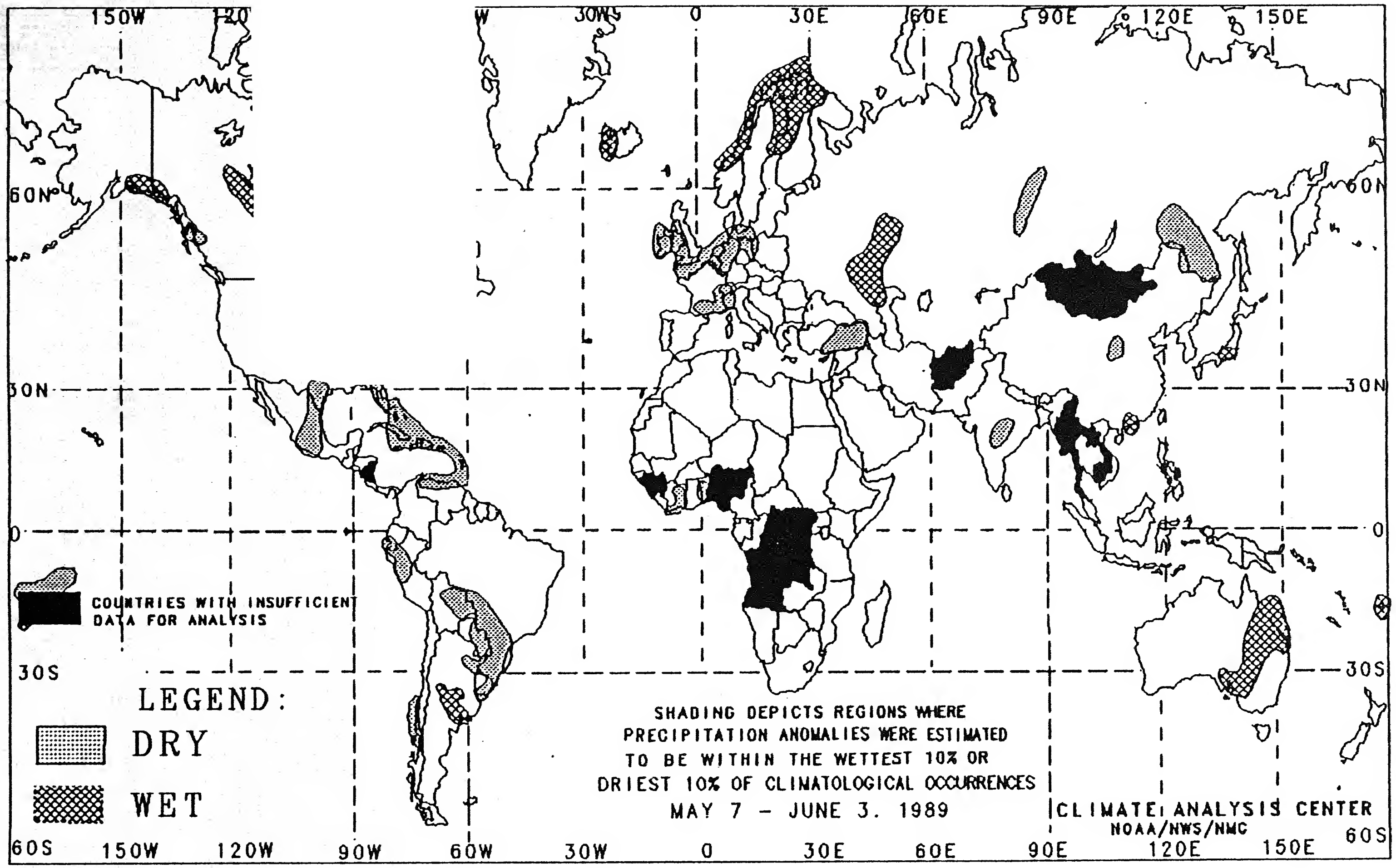
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were recieved or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South Africa, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week predipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

UNITED STATES MONTHLY CLIMATE SUMMARY

MAY 1989

May is typically a month of extremes across the contiguous U.S. While summer-like weather usually prevails across the southern tier of states, wintry conditions are not uncommon in the northern parts of the country. During May 1989, hot, dry weather frequented the desert Southwest and the southern portions of the Rockies and Great Plains while heavy snows fell on the Cascade and northern Rocky Mountains and the northern High Plains (up to 12 inches in one day at Great Falls, MT). During the first half of the month, a late-season blast of cold air moved southeastward out of central Canada and kept most of the eastern half of the country unseasonably cool and wet. Some stations in the lower Great Lakes and Ohio Valley recorded their latest measurable snowfall in sixty years. As the leading edge of cooler air pushed into the East and South, numerous thunderstorms were generated in the south- central Great Plains, Southeast, Ohio Valley, mid-Atlantic, and New England. In the latter two areas, the additional presence of an upper-air disturbance produced heavy rains and flooding; however, the ample rains ended most concerns about summer water shortages which had seemed imminent for the metropolitan areas of Philadelphia, New York, and Boston. By mid-month, a heat wave developed in southern Texas and eastern New Mexico and eventually spread northward and eastward to encompass the eastern two-thirds of the nation by the end of May. In contrast, subfreezing temperatures invaded the northern sections of the Intermountain West and Rockies during the second half of May. Several slow-moving cold front triggered severe weather, including torrential downpours, damaging winds, large hail, and dozens of tornadoes, across parts of the Great Plains, the Mississippi and Ohio Valleys, Great Lakes, and along the Eastern Seaboard. Elsewhere, the southeastern coast of Alaska received some relief from long-term dryness as heavy precipitation moved into the region during the latter half of the month. In Hawaii, unusually strong trade winds kept the eastern islands very wet while depriving western sections of significant rain.

Despite the heavy precipitation in the Northeast, the nation as a whole ended up slightly drier than normal in May. According to the National Climatic Data Center (NCDC), the Southwest, West-North Central, and East-North Central regions experienced the sixteenth, sixteenth, and twenty-eighth driest May during the past 95 years, respectively. Most of the Far West reported little precipitation; however, the late spring and summer months are normally dry in the West. In the nation's midsection, where precipitation usually increases during the springtime and reaches a peak by the early summer, much of the middle Missouri Valley received less than half the normal May precipitation (see Table 1, Figure 1, and front cover). To the south, subnormal May rainfall occurred in southern Texas, the eastern halves of South Carolina and Georgia, and throughout most of Florida. Although stationary thunderstorms brought locally heavy rainfall to parts of southern Florida (e.g. 7.75 inches of rain at Ft. Myers on May 18), these storms were very isolated, and most of Florida and adjacent parts of the south Atlantic Coast experienced their fifth consecutive month with below normal precipitation.

Wet weather encompassed much of the eastern U.S. as an area from central Texas eastward to the Florida panhandle and northward across the Great Lakes and New England recorded surplus May precipitation (see Table 2, Figure 1, and the front cover). Above normal precipitation also fell on parts of the northern Rockies and Pacific Northwest. Regionally, the Northeast recorded its second wettest May since 1895, according to the NCDC. Reports from the River Forecast Centers indicated that up to 15.9 inches of rain fell on the Pocono (northeastern Pennsylvania) and Catskill (central New York) Mountains. Farther south, up to 21.4 inches fell in northern Louisiana, while 10 to 19 inches of rain was measured at several stations across northeastern Texas. Parts of the Pacific Northwest received very heavy rains during the second and third weeks of May, but dry regimes early and late in the month kept them from recording excessive precipitation totals. Parts of southwestern Nevada and eastern California received over 200% of normal precipitation, but this corresponded to less than a half inch of rain. Southeastern Alaska and eastern Hawaii also experienced wet weather as Cordova, AK and Hilo, HI reported more than 11 inches of rain and 150% of normal precipitation.

Near-record heat persisted from southern Louisiana westward to south-central California. The greatest positive temperature departures (between +5°F and +7°F) occurred in central Arizona, southern Texas, and northern Maine (see Table 3, Figures 2 and 3), and the first two areas have experienced seven consecutive weeks of above-normal temperatures. According to the NCDC, the Southwest and South regions recorded their sixth and fifteenth warmest May since 1895, respectively. May temperatures averaged 2°F to 4°F above normal in the northern Great Plains, Great Lakes, and southern Alaska, where above normal temperatures have been reported for three consecutive months in the latter region.

Warm weather during the last two weeks of May did not compensate for the unseasonably cold conditions that prevailed over the eastern U.S. during the first half of the month. As a result, much of the Southeast, mid-Atlantic, and Tennessee, Ohio, and middle Mississippi Valleys experienced subnormal May temperatures (see Table 4, Figures 2 and 3). Monthly departures of -5°F were recorded in the central Appalachians, where weekly departures between -13°F and -15°F occurred during the cold snap. According to the NCDC, the Southeast and Central regions experienced their sixteenth and twenty-first coldest May during the past 95 years, respectively. Elsewhere, temperatures averaged 2°F to 3°F below normal in parts of the northern portions of the Rockies, the Intermountain West, and the northern half of Alaska.

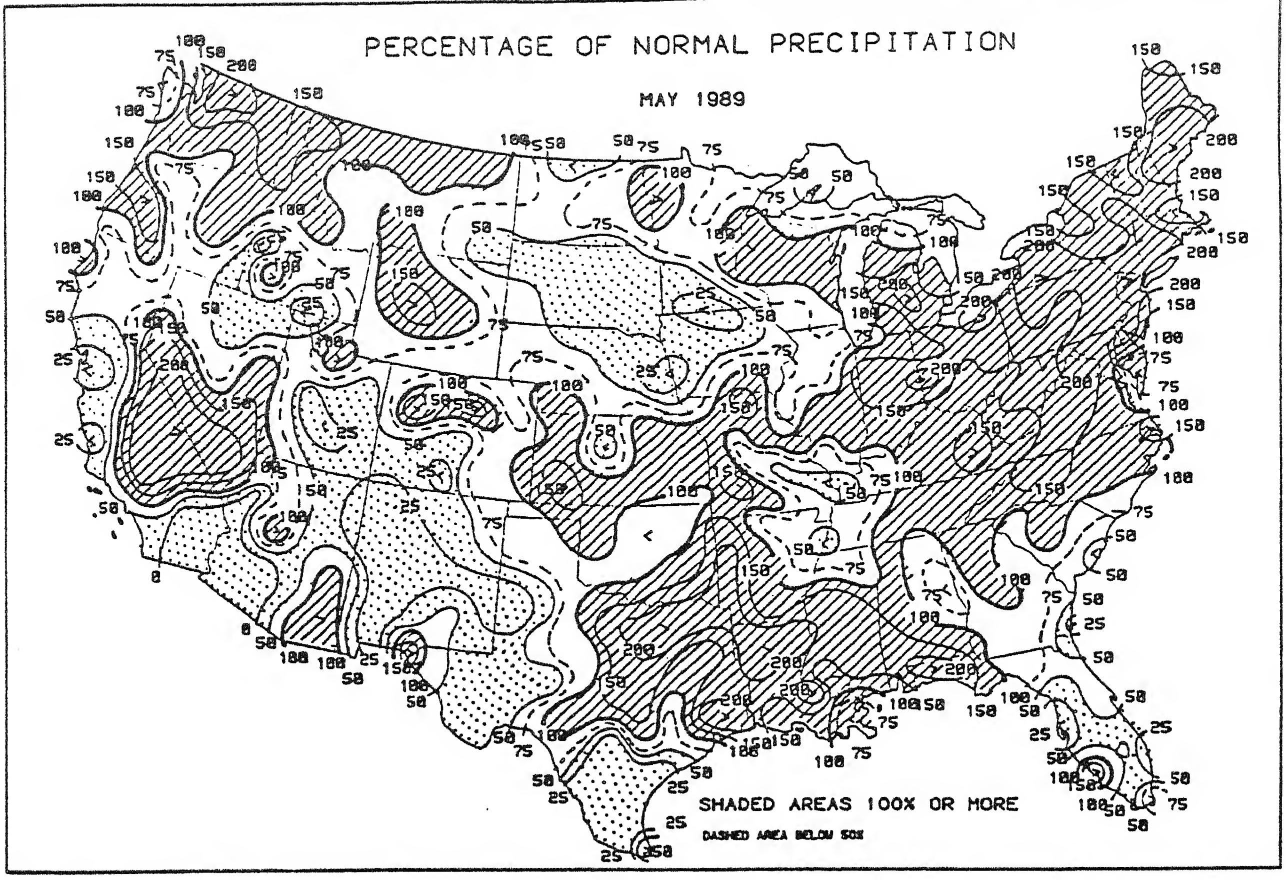


Figure 1. Percent of normal precipitation during May 1989. Dotted areas received less than 50%, and hatched areas are above normal. In contrast to April 1989, much of the East experienced wet conditions while extreme dryness was confined to parts of the northern Great Plains, Florida, southern Texas, and the Southwest.

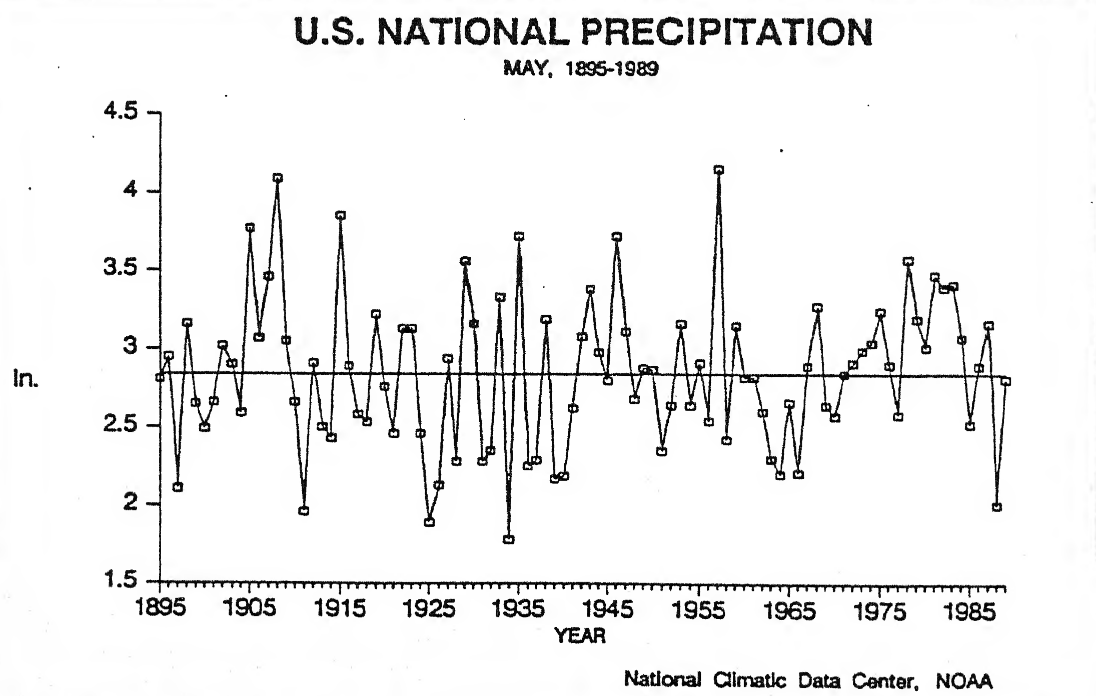
TABLE 1. MAY STATIONS WITH LESS THAN 50% OF NORMAL PRECIPITATION AND MORE THAN THREE INCHES OF NORMAL PRECIPITATION.

STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)	STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)
BEEVILLE NAS, TX	0.08	2.2	3.57	SIOUX FALLS, SD	1.42	44.5	3.19
CORPUS CHRISTI, TX	0.10	2.9	3.39	PALACIOS, TX	1.43	30.4	4.71
TAMPA, FL	0.24	7.1	3.36	CHANUTE, KS	1.44	29.3	4.92
SAN ANTONIO, TX	0.33	9.0	3.65	RUSSELL, KS	1.50	38.8	3.87
NORTH OMAHA, NE	0.54	12.5	4.31	SIOUX CITY, IA	1.51	44.0	3.43
ESCENABA, MI	0.59	19.6	3.01	WATERLOO, IA	1.54	37.3	4.13
BRUNSWICK, GA	0.67	17.1	3.92	JACKSONVILLE, FL	1.55	36.7	4.22
VICTORIA, TX	0.69	15.4	4.47	CEDAR RAPIDS, IA	1.63	37.1	4.39
MASON CITY, IA	0.76	18.5	4.10	NORFOLK, NE	1.71	46.3	3.69
WEST PALM BEACH, FL	0.78	13.0	6.00	COLUMBUS, GA	1.91	43.0	4.44
SPENCER, IA	0.83	22.6	3.67	VERO BEACH, FL	1.95	44.4	4.39
LINCOLN, NE	0.91	23.7	3.84	CAPE GIRARDEAU, MO	1.97	41.3	4.77
REDWOOD FALLS, MN	0.98	31.5	3.11	KODIAK, AK	2.01	38.4	5.24
MIAMI, FL	0.99	15.2	6.50	CHARLESTON, SC	2.14	48.8	4.39
HANCOCK, MI	1.07	34.9	3.07	MEMPHIS, TN	2.33	46.2	5.04
AKRON, CO	1.25	40.6	3.08	ANNETTE ISLAND, AK	2.68	40.0	6.70

TABLE 2. MAY STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN EIGHT INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN EIGHT INCHES OF PRECIPITATION AND NO NORMALS.

STATION	TOTAL (INCHES)	PCT. OF NORMAL	STATION	TOTAL (INCHES)	PCT. OF NORMAL
HILO/LYMAN, HAWAII, HI	19.80	211.3	FT. WORTH/CARSWELL AFB, TX	9.47	***
BATON ROUGE, LA	14.67	304.4	POUGHKEEPSIE, NY	9.45	261.1
MT. WASHINGTON, NH	13.75	213.5	WACO, TX	9.34	198.7
HOUSTON, TX	13.56	283.7	CLEVELAND, OH	9.14	278.7
PORT ARTHUR, TX	12.69	256.9	AUGUSTA, ME	9.09	268.1
HARTFORD, CT	12.00	358.2	FT WORTH/MEACHAM, TX	9.06	***
MONROE, LA	11.95	237.1	NEW YORK/LA GUARDIA, NY	8.83	256.7
CORDOVA/MILE 13, AK	11.43	196.1	HARRISBURG, PA	8.81	240.1
NEW YORK/KENNEDY, NY	10.71	315.0	FAYETTEVILLE, AR	8.77	160.6
SHREVEPORT/BARKSDALE, LA	10.62	***	PORTLAND, ME	8.74	268.9
WASHINGTON/ANDREWS AFB,MD	10.61	***	BALTIMORE, MD	8.71	254.7
FORT SMITH, AR	10.21	213.6	DAYTON, OH	8.55	232.3
SHREVEPORT, LA	10.07	213.8	BRUNSWICK/NAS, ME	8.52	204.8
FT. BELVOIR/DAVISON AAF, VA	10.02	***	NEWARK, NJ	8.47	237.2
VALPARAISO/EGLIN AFB, FL	9.94	248.5	BRADFORD, PA	8.31	222.8
DALLAS/FORT WORTH, TX	9.62	222.2	WILLOW GROVE NAS, PA	8.20	***
CHICOPEE/WESTOVER AFB, MA	9.59	263.5	FORT MYERS, FL	8.03	195.4
ALEXANDRIA/ENGLAND AFB, LA	9.55	184.4	WILKES-BARRE, PA	8.02	257.9
BRIDGEPORT, CT	9.53	278.7	DOVER AFB, DE	8.01	209.1
ALLENTOWN, PA	9.52	268.2			

(Note: Stations without precipitation normals are indicated by asterisks.)



The data are obtained from NCDC's cooperative data network. Individual stations are grouped into state climate divisions (344 in the contiguous U.S.) and an average monthly temperature and total precipitation value is calculated. An average state value is then determined for precipitation and temperature from the climate division values and are area-weighted. A national average for both temperature and precipitation is taken from these area-weighted state values and compared during the past 95 years (since 1895). Some climate division boundaries were different before 1931, but an algorithm was developed to compensate for the discrepancy. The number of cooperative stations has increased from approximately 500 in 1895 to nearly 8000 in 1989. The average (mean) value is depicted in each graph and incorporates the entire time period (95 years).

Caution should be exercised when using the national precipitation and temperature rankings as the national average is obtained from several regions with different monthly climate regimes. For example, a region with large normal precipitation (e.g. the Southeast in May) can dominate a region with small normal precipitation (e.g. the West in May).

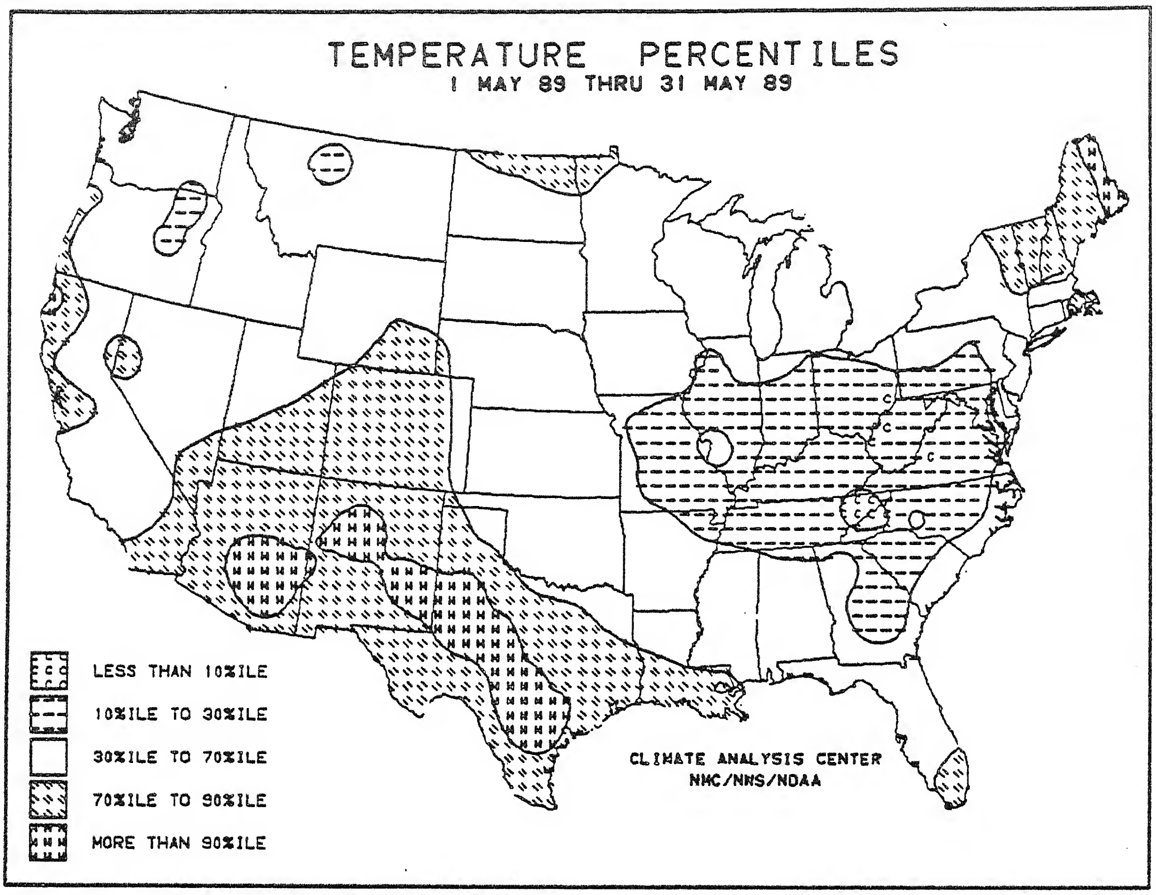


Figure 2. Temperature percentiles during May 1989. Statistically and historically, it was unseasonably warm in southern portions of the Plains and Rockies as well as in northern New England. In contrast, cool weather covered the Ohio Valley and mid-Atlantic, especially during the first half of the month.

TABLE 3. MAY AVERAGE TEMPERATURES 3.5°F OR MORE ABOVE NORMAL.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BEEVILLE NAS, TX	+7.4	84.2	BURLINGTON, VT	+4.3	59.5
CARIBOU, ME	+6.5	56.7	FLAGSTAFF, AZ	+4.3	54.1
PHOENIX, AZ	+6.1	83.1	MCALLEN, TX	+4.2	83.7
SAN ANTONIO, TX	+6.1	81.7	TUCSON, AZ	+4.1	77.4
PRESCOTT, AZ	+6.1	63.3	LUBBOCK, TX	+4.1	73.0
ALICE, TX	+5.8	84.0	ALBUQUERQUE, NM	+4.1	68.7
KINGSVILLE NAS, TX	+5.4	83.5	CORPUS CHRISTI, TX	+4.0	81.9
RUMFORD, ME	+5.4	58.3	BANGOR, ME	+4.0	57.1
ROSWELL, NM	+5.3	74.4	WINSLOW, AZ	+3.8	66.0
GLENDALE/LUKE AFB, AZ	+5.0	80.6	LEBANON, NH	+3.8	58.1
DEL RIO, TX	+4.5	82.0	EUREKA, CA	+3.8	55.9
VICTORIA, TX	+4.5	81.1	TUCUMCARI, NM	+3.7	70.1
SAN ANGELO, TX	+4.5	78.3	MONTPELIER, VT	+3.7	56.8
MIDLAND, TX	+4.5	76.8	TUCSON/DAVIS-MONTHAN AFB,AZ	+3.5	76.0
MT. WASHINGTON, NH	+4.5	39.1	CARLSBAD, NM	+3.5	75.6
DEMING, NM	+4.3	71.0	FARMINGTON, NM	+3.5	63.2
CLOVIS/CANNON AFB, NM	+4.3	69.7			

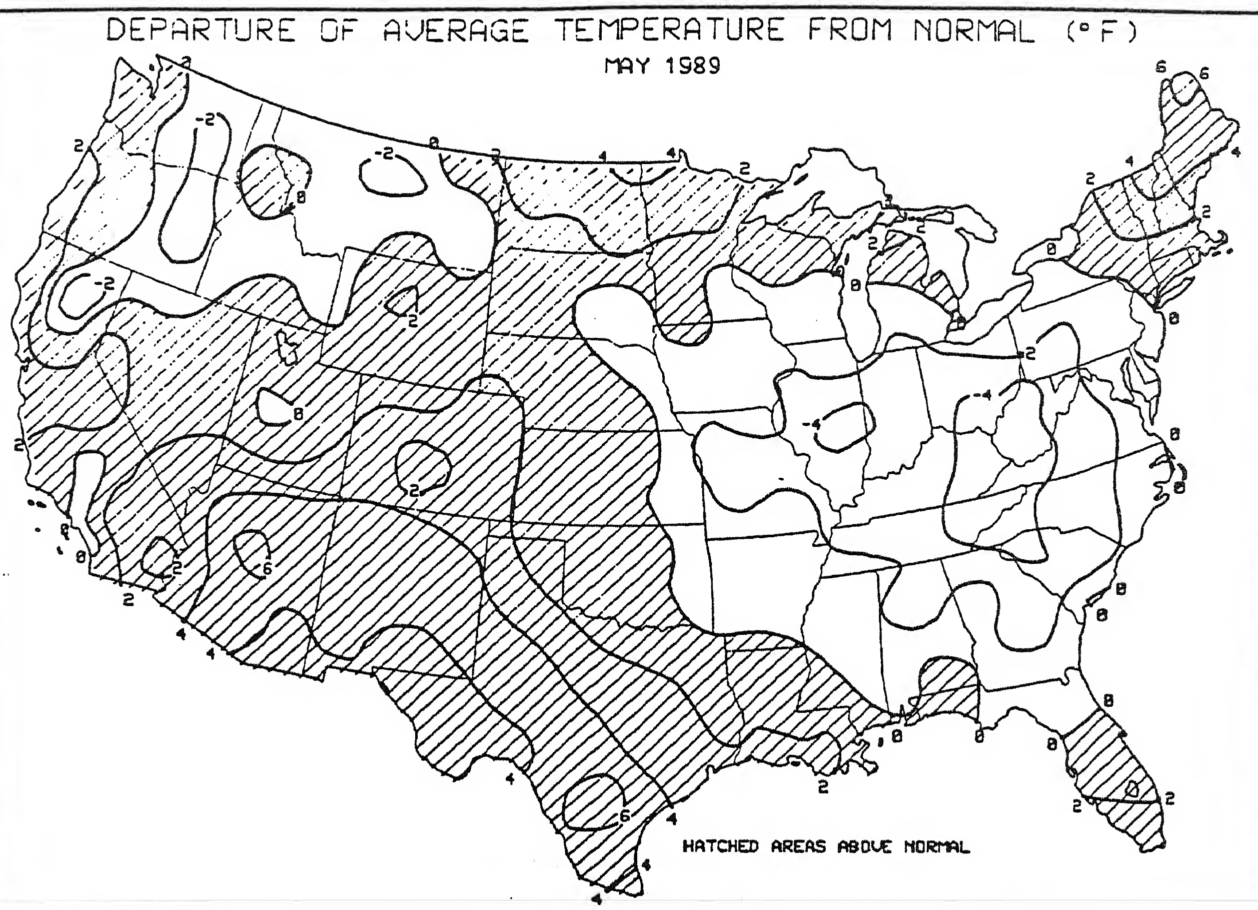
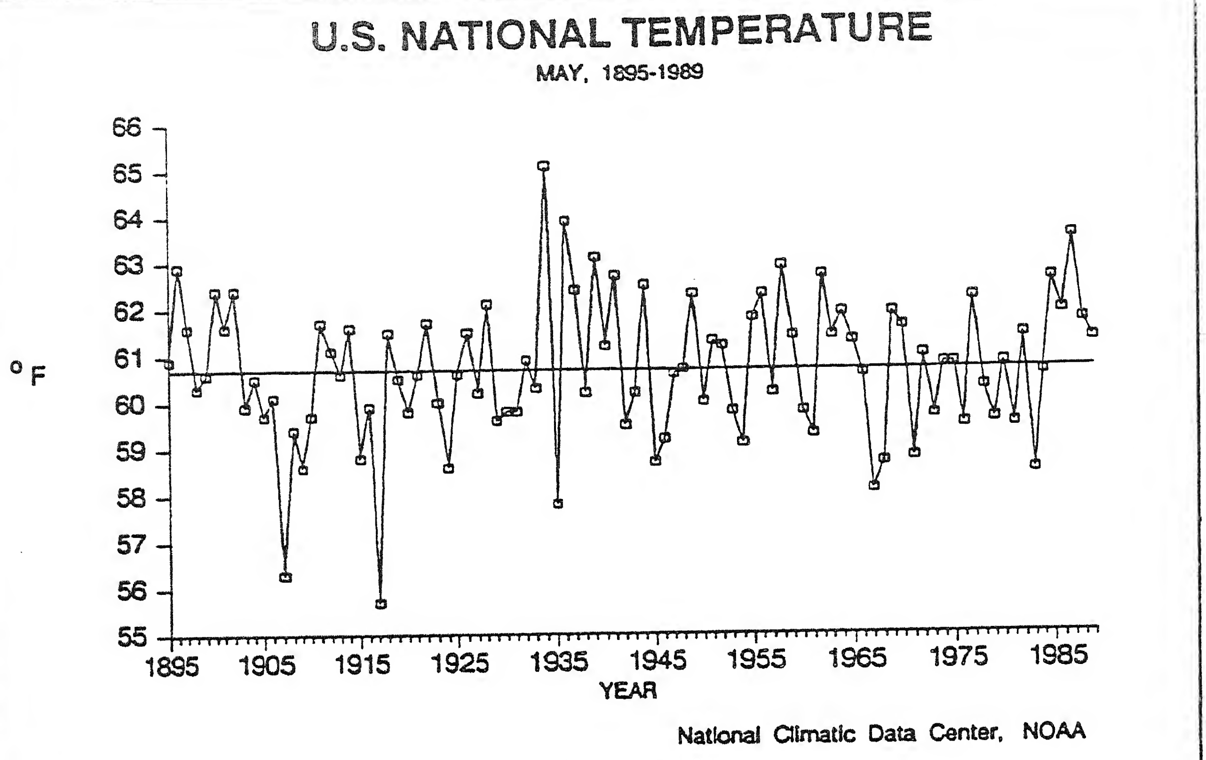


Figure 3. Temperature departure from normal (°F) during May 1989. Shaded areas were above normal, and isotherms are drawn for every 2°F. Above normal temperatures covered the south-central and southwestern states while an early- month blast of cold air greatly contributed to subnormal monthly temperatures in the Midwest and the southern halves of the Appalachians and Atlantic Coast states.

TABLE 4. MAY AVERAGE TEMPERATURES 3.0°F OR MORE BELOW NORMAL.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
KNOXVILLE, TN	-5.0	62.4	CROSSVILLE, TN	-4.0	59.3
PARKERSBURG, WV	-4.7	58.8	ROANOKE, VA	-3.8	61.2
BRISTOL, TN	-4.7	59.7	ELKINS, WV	-3.6	54.9
HUNTINGTON, WV	-4.7	59.9	BECKLEY, WV	-3.6	56.1
CHARLESTON, WV	-4.5	59.4	LEXINGTON, KY	-3.6	60.6
COLUMBUS, OH	-4.3	57.2	HICKORY, NC	-3.6	63.0
MORGANTOWN, WV	-4.3	57.4	SUMTER/SHAW AFB, SC	-3.6	68.0
JACKSON, KY	-4.3	60.4	DANVILLE, VA	-3.5	64.3
GREENVILLE, SC	-4.3	64.4	COLUMBIA, MO	-3.2	61.5
ANDERSON, SC	-4.3	65.4	GREENSBORO, NC	-3.2	63.1
BLUEFIELD, WV	-4.2	56.8	DAYTON, OH	-3.1	58.8
ASHEVILLE, NC	-4.1	59.4	INDIANAPOLIS, IN	-3.1	59.4
SPRINGFIELD, IL	-4.1	59.4	CINCINNATI, OH	-3.1	60.1
NOME, AK	-4.0	31.8	ANNISTON, AL	-3.0	67.0



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Temperature and Precipitation Rankings for May 1989, based on the period 1895-1989. 1 = driest/coldest, 95 = wettest/hottest.

Region	Precipitation	Temperature
National	43	60
Northeast	94	53
East North Central	28	51
Central	55	23
Southeast	48	16
West North Central	16	56
South	56	81
Southwest	16	90
Northwest	50	39
West	46	65

TABLE 5. RECORD MAY TOTAL PRECIPITATION.

STATION	TOTAL (INCHES)	NORMAL (INCHES)	PCT. OF NORMAL	RECORD TYPE	RECORDS BEGAN
BATON ROUGE, LA	14.67	4.82	304.4	HIGHEST	1945
HARTFORD, CT	12.00	3.35	358.2	HIGHEST	1947
CLEVELAND, OH	9.14	3.28	278.7	HIGHEST	1947
HARRISBURG, PA	8.81	3.67	240.1	HIGHEST	1951
BALTIMORE, MD	8.71	3.42	254.7	HIGHEST	1950
DAYTON, OH	8.55	3.68	232.3	HIGHEST	1951
WILKES-BARRE, PA	8.02	3.11	257.9	HIGHEST	1951
BUFFALO, NY	7.22	2.87	251.6	HIGHEST	1947
CHARLESTON, WV	6.79	3.66	185.5	HIGHEST	1951
LANSING, MI	6.57	2.35	279.6	HIGHEST	1949
PITTSBURGH, PA	6.56	3.48	188.5	HIGHEST	1871
ERIE, PA	6.14	3.11	197.4	HIGHEST	1954
ANCHORAGE, AK	1.93	0.55	350.9	HIGHEST	1941
WATERLOO, IA	1.54	4.13	37.3	LOWEST	1951
LINCOLN, NE	0.91	3.84	23.7	LOWEST	1971
VICTORIA, TX	0.69	4.47	15.4	LOWEST	1961
NORTH OMAHA, NE	0.54	4.31	12.5	LOWEST	1871
MCALLEN, TX	0.00	2.08	0.0	LOWEST	N/A
KENAI, AK	0.00	0.92	0.0	LOWEST	N/A
DEMING, NM	0.00	0.25	0.0	LOWEST	N/A

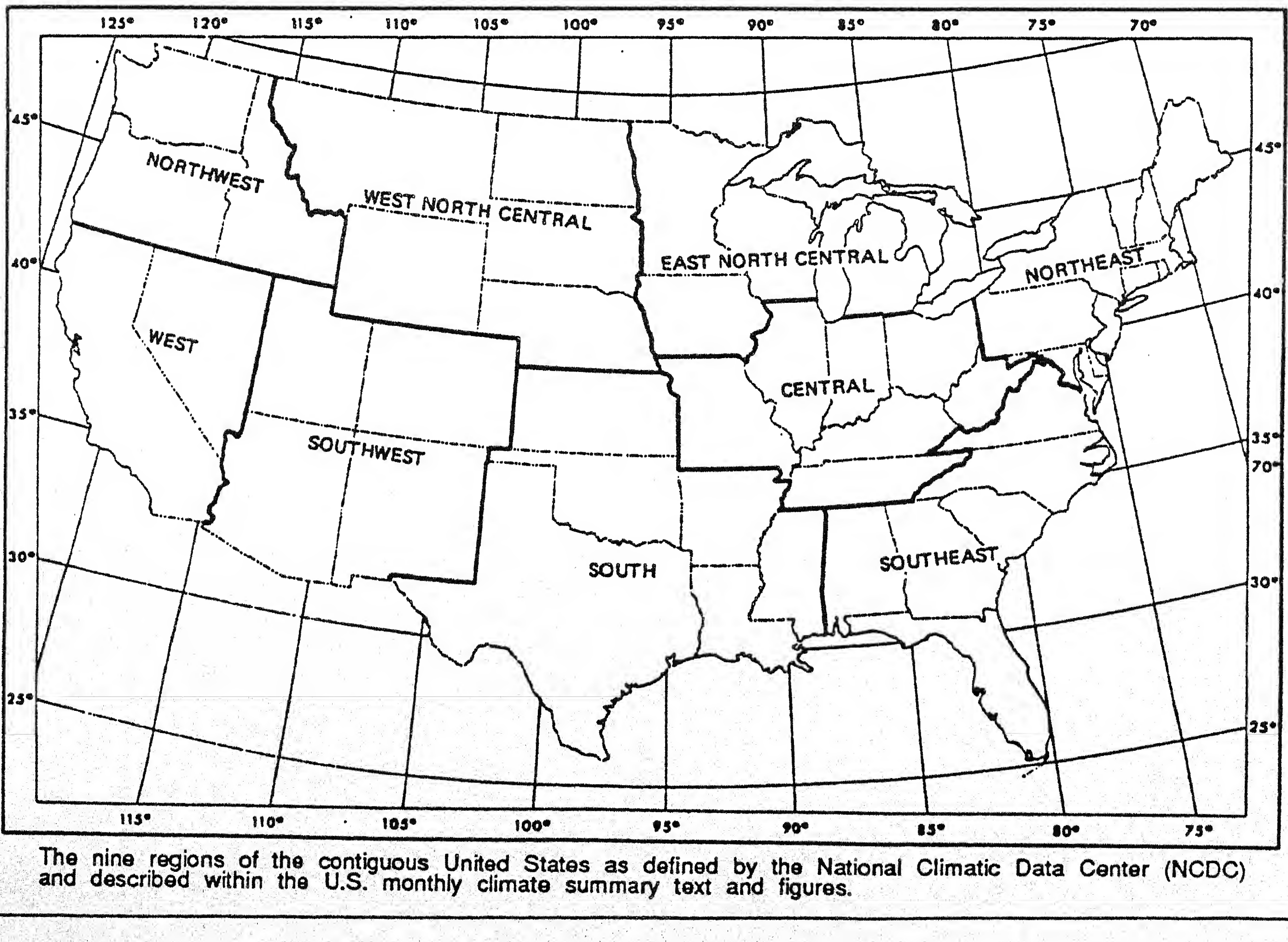
Note: Trace precipitation is considered no precipitation. Stations with no precipitation are only included if normal precipitation is 0.25 inches or more.

TABLE 6. RECORD MAY AVERAGE TEMPERATURES.

STATION	AVERAGE (°F)	NORMAL (°F)	DEPARTURE (°F)	RECORD TYPE	RECORDS BEGAN
CARIBOU, ME	56.7	50.2	+6.5	HIGHEST	1947
SAN ANTONIO, TX	81.7	75.6	+6.1	HIGHEST	1947
ROSWELL, NM	74.4	69.1	+5.3	HIGHEST	1951
VICTORIA, TX	81.1	76.6	+4.5	HIGHEST	1961
CORPUS CHRISTI, TX	81.9	77.9	+4.0	HIGHEST	1887
MIAMI, FL	81.0	78.4	+2.5	HIGHEST	1947
LAKE CHARLES, LA	77.4	74.8	+2.5	HIGHEST	1961

TABLE 7. RECORD MAY EXTREME TEMPERATURES.

STATION	EXTREME (°F)	DATE	RECORD TYPE	RECORDS BEGAN
MIDLAND, TX	108	24 MAY 89	HIGHEST	1949
SAN ANGELO, TX	107	25 MAY 89	HIGHEST	1948
LUBBOCK, TX	104	24 MAY 89	HIGHEST	1947
ROSWELL, NM	104	23 MAY 89	HIGHEST	1973
SAN ANTONIO, TX	103	25 MAY 89	HIGHEST	1940
GRAND ISLAND, NE	101	29 MAY 89	HIGHEST	1939
VALENTINE, NE	99	23 MAY 89	HIGHEST	1956
LINCOLN, NE	99	29 MAY 89	HIGHEST	1971
CHARLESTON, SC	98	27 MAY 89	HIGHEST	1943
LAKE CHARLES, LA	96	28 MAY 89	HIGHEST	1962
MIAMI, FL	95	18 MAY 89	HIGHEST	1940
ST. LOUIS, MO	93	30 MAY 89	HIGHEST	1958
KEY WEST, FL	91	28 MAY 89	HIGHEST	1945
HONOLULU, OAHU, HI	60	3 MAY 89	LOWEST	1947
LIHUE, KAUAI, HI	59	2 MAY 89	LOWEST	1950
WILMINGTON, NC	38	8 MAY 89	LOWEST	1952
GREENSBORO, NC	32	8 MAY 89	LOWEST	1929
GREENVILLE, SC	31	8 MAY 89	LOWEST	1963
ASHEVILLE, NC	28	8 MAY 89	LOWEST	1965
LA CROSSE, WI	26	6 MAY 89	LOWEST	1951
NORTH PLATTE, NE	19	1 MAY 89	LOWEST	1948
VALENTINE, NE	15	1 MAY 89	LOWEST	1956



The nine regions of the contiguous United States as defined by the National Climatic Data Center (NCDC) and described within the U.S. monthly climate summary text and figures.